SARGENT

Full Size

6300 Series

Removable Core

Keying & Assembly Manual

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The Core

The 6300 series core is the one currently used on all new SARGENT master-keying systems where removable core products are required. The 6300 series version removable core (as described in this manual) uses a sleeve that spans the 3rd and 4th chambers of the core. All key blanks are of the same length. The 6300 series is similar in concept to many of the other manufacturers of this type product. However, the SARGENT 6300 series removable core can only be used in SARGENT locking products. It will not fit into any of our competitor's removable core locking products. Also no other manufacturer's removable core type product will fit into any SARGENT locking product designed to accept the removable core.

OPERATION

All operating change and master level keys operate on the barrel (plug) shear line.

The control key creates a shear line in chambers one, two, five and six of the barrel (plug) and a second shear line in three and four chambers that involve the control sleeve (lug). When the control key is inserted it locks the control sleeve with the barrel so they move as one unit.

Extracting the core.

Inserting and rotating the control key approximately 15° to the left allows the extraction of the core from its housing

Inserting the core into housing.

Insertion of a new core into the housing involves inserting the control key into the core.

Rotating the control key to the left until it stops.

Inserting the core and control key into the housing.

Rotating the control key to the right until it stops
Then removing the control key from the core/housing unit.

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Creating the Control Key.

The 6300 series removable core's control key's bitting is created so that it's bittings match the Top Master Key (TMK) of the key system in positions 1,2,5 and 6 on the key blade. The control bittings selected in positions 3 and 4 are selected from the Key Bitting Array (KBA) of the master key system. This method significantly reduces the bittings available in the KBA (Key Bitting Array) of any TMK. Increasing the levels in the master keying system and cross keying also has a significant impact on the yield of keys at each selected level.

Calculating the Assembly Matrix.

The chamber stack values for SARGENT recore cylinders are calculated based on a numeric value of 15 in chambers 1, 2, 5, and 6. The stack value in each chamber represents the total value of the pin segment numbers of the Bottom pins, Master splits and Driver pins that are required (based on the keying levels) to pin the core.

In chambers 3 and 4 of the recore the stack value is changed to 20. This is done to include the required additional pin segment in chambers 3 and 4 to allow the control key to achieve a shear line in the control sleeve.

Method for Developing the Assembly Matrix

The following diagrams can be used to determine the pin segments for the SARGENT 6300 series Removable Core.

Selecting the Pins for the Operating Keys.

The first step is to determine the bottom pin and any master pins needed in each chamber to make all operating keys functional in the core. Operating keys being all keys (change/day, Mk's, Gmk's etc.) except the control key. Calculating pin sizes required for the operating keys is based on the master key system key bittings that are assigned to be used in the removable core.

Determine the smallest number that occurs in each chamber from all the keys that are to operate the core. This will yield the bottom pins that are to be placed in each chamber.

Next calculate whatever additional combination of master pins will be needed in each chamber to allow all the operating keys to pass the core.

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Calculating the Pin Segments for the Control Key

After you have completed the selection of the pins required to ensure the operating keys will function correctly in the core. The next step is to determine what pins segments are required to allow proper function of the control key. This is accomplished as follows;

Add the number 8 to the bitting cut in the third and fourth position of the control key to obtain what is referred to as the "control pin factor".

From this "control pin factor", subtract the largest bitting cut in the third and fourth position of all the operating keys.
The numbers resulting from this calculation are the numbers of the master wafers that are to be added to the pin stack in the third and fourth chambers of the core.

Calculating the Driver Pin Sizes.

The last step is to determine the size of the driver pin for each of the core chambers.

Remember the total stack value of chambers one, two, five, and six is 15 and the total stack value of chambers three and four is 20.

Now add the numbers of the bottom pin, master pins and control pin in each chamber.

In order to obtain the correct master pin to be used as the driver in each chamber. Subtract the resulting value in step 3 from the total stack size of 15 in chambers 1, 2, 5, and 6. Or subtract the resulting value in step 3 from the total stack size of 20 in chambers 3 and 4

Be sure to substitute the correct special hollow drivers and spring in place of the normal drivers and springs in chambers 3 and 4 as shown in the attached chart. (available in pin kit ULRC437)

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The following is an example showing how to select the pin segments for each chamber of the SARGENT 6300 series removable core.

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1) List of Operating Keys

	KEY SYMBOLS	BITTINGS
List Day Chges/MK's GM's etc.	GM "A"	4 9 4 1 6 0
Do Not list bitting of.	MK "AA"	4 9 2 3 6 0
the Control key in this area.	CK "AA1"	2 1 2 3 2 2

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2) Calculate Bottom Pins and Master Splits

Find Correct Size for Bottom and Master Splits from Operating Keys List

(a)	* * * * * * BOTTOM PINS * * * * * * * * (Smallest Number in Each Chamber)	2 1 2 1 2 2
(b)	* * * * * * MASTER SPLITS * * * * * * * (Difference in Smallest and Largest Number in each chamber)	2 8 2 2 4 8

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3) Calculate Value of Control Splits.

CONTROL KEY BITTING
4 9 6 5 6 0

(3.1) CONTROL PIN ADDITIVE)Fixed Value of 8) . 8 8

(3.2) Add Fixed value 8 to control bittings positions 3 and 4

Control Pin Factor = 14 13

(3.3) Subtract Largest Number in Positions 3 and 4 from **List of Operating Keys** from Control pin Factor. 4 3

(c CONTROL SPLITS = 10 10

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4) Calculate Top or Driver Pin. TOTAL STACK VALUE 15 15 20 20 15 15

(4.1) Add Value of: ((a) Bottom Pins, + (b) Master Splits + (c) Control Splits).Enter total here. 4 9 14 13 6 10

(4.2) Subtract total from TOTAL STACK VALUE above.

(d) (4.3) Enter values on this line. DRIVER SPLITS (Master Splits) **11 6 6* 7* 9 5**

*** Use special hollow drivers and springs in chambers 3 and 4**

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5) Pinning Assembly Matrix

Example of pinning matrix for above key bittings.

Transfer Values labeled (a), (b), (c), (d) from items 2), 3), and 4) above.

(d) Driver Splits	11	6	6*	7*	9	5
(c) Control Splits	-	-	10	10	-	-
(b) Master Splits	2	8	2	2	4	8
(a) Bottom Pins	2	1	2	1	2	2
Stack Total	15	15	20	20	15	15

- Remember Use Special Hollow Divers and Spring in Chambers 3 and 4
  From Special Pin Kit ULRC437

6300 Series Removable Core Keying and Assembly

1) Enter List of   KEY SYMBOL   BITTING

Operating Keys. |___|___|___|___|___| |____|____|____|____|____|____|
(All Day, Master,
Grand Master keys etc.) |___|___|___|___|___| |____|____|____|____|____|____|

Do Not list Bitting |___|___|___|___|___| |____|____|____|____|____|____|
of the Control Key
in this area. |___|___|___|___|___| |____|____|____|____|____|____|

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2) Calculate Bottom and Master Pins.

(a) * * * * * * * BOTTOM PINS * * * * * * * * |____|____|____|____|____|____|
(Smallest Number in Each Chamber)
(b) * * * * * * * MASTER SPLITS * * * * * * |____|____|____|____|____|____|
(Difference in lowest to highest value in each chamber)

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3) Calculate Value of Control Splits.

CONTROL KEY BITTING

|____|____|____|____|____|____|

(3.1) CONTROL PIN ADDITIVE insert fixed value of 8 |____|____|

(3.2) Add Fixed value 8 to control bittings
in positions 3 and 4 Control Pin Factor = |____|____|
(3.3) Select Largest Number in Positions 3 and 4 from
Operating Keys List insert answer here |____|____|

(3.4) Subtract step 3.3 from step 3.4 this = **CONTROL PINS** |____|____|

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4) Calculate Driver Pin. Total Stack Value = |_15_|_15_|_20_|_20_|_15_|_15_|

(4.1) Add Value of:
(a Bottom Pins, + b Master Splits + c Control Splits)
(4.2) Enter on this line. Subtract from Total Stack Value above. |_____|_____|_____|_____|_____|_____|

* * * * * * * DRIVER PINS * * * * * * * * = |____|____|____|____|____|____|

** Note use special hollow drivers and springs in control sleeve chambers three and four.*

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5) Core Assembly Matrix

Insert Values from (a), (b), (c) and (d) from items 2), 3) and 4)above.

(d) DRIVER PINS |____|____|____|____|____|____|

(c) CONTROL PINS |____|____|

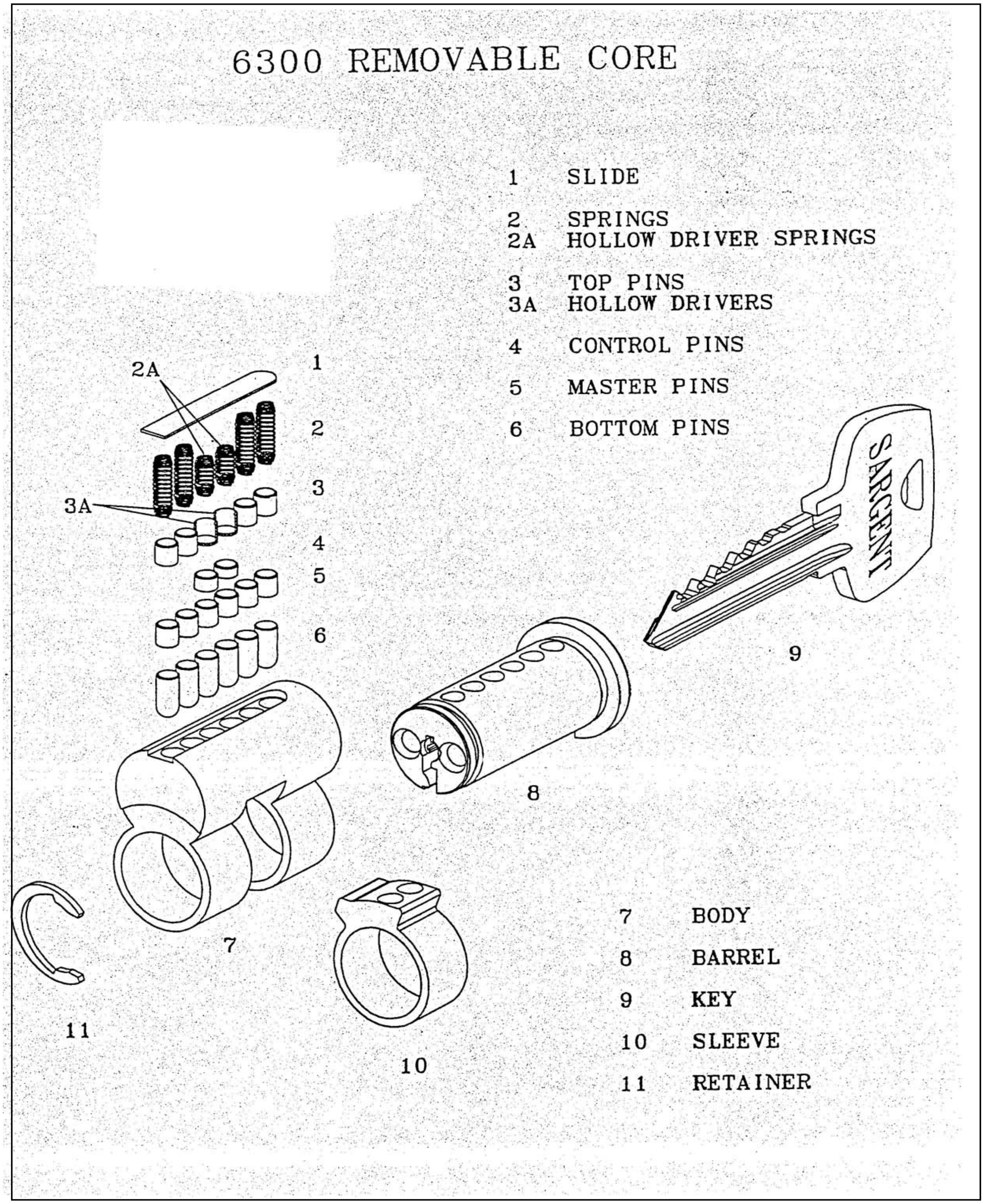
(b) MASTER SPLITS |____|____|____|____|____|____|

(a) BOTTOM PINS |____|____|____|____|____|____|

Stack Height Totals |____|____|____|____|____|____|

** Note Remember Use Special Hollow Divers and Spring in Chambers 3 and 4

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